

THE NATIVE WALNUTS OF CALIFORNIA

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A good many years ago, while looking over the interesting maps which accompany Sargent's Report upon the Forest Trees of the United States for the Tenth Census, I was much struck by the band of color extending from the Pacific Ocean to the borders of the San

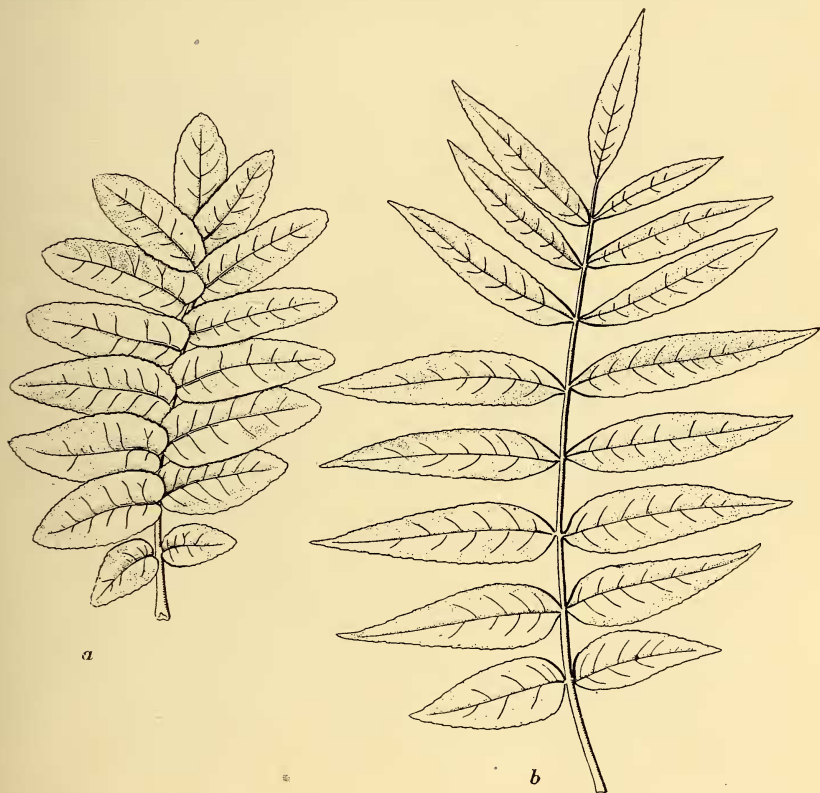


Fig. 27. The leaf marked *a* belongs to *Juglans Californica*, or the Southern California Walnut, which grows on dry hillsides. The leaflets are rather obtuse and often crowded, as shown in the figure. The leaf marked *b*, with the leaflets more pointed and less crowded, is typical of *Juglans Hindsii*, the Central California Walnut, which commonly grows along streams, and always in deep rich moist valley or bench soil. *Juglans Californica* is distributed from Santa Barbara County to Orange County and east to the foothills of the San Bernardino Mountains. *Juglans Hindsii* is known to occur on Walnut Creek, the lower Sacramento River, near Mt. Atlas in Napa County, and in Gordon Valley west of the Vaca Mountains. Drawing by Dr. Helen M. Gilkey. About $\frac{2}{3}$ natural size.

Joaquin Valley and from San Francisco Bay and its arms south to Orange County, which indicated the distribution of our native walnut (*Juglans Californica*). At that time I knew only two stations in the north for native walnuts, one at Walnut Creek near Mt. Diablo, the other in the lower Sacramento River delta about Walnut Grove, this latter beyond the limits of the colored area on the map referred to above. No locality between Mt. Diablo and the northern boundaries of Santa Barbara County was known to me, nor has subsequent exploration or inquiry revealed any station to bridge the long gap between the northern and the southern localities for our native walnuts.

In 1901 Mrs. Ida M. Blochman sent from Santa Maria a collection of fruits of the native walnut. I was much struck by the very small size of the nuts (they were only about $\frac{5}{8}$ inch in diameter) as compared with the nuts borne by the trees about Walnut Creek, which are over an inch in diameter. These and other differences led the writer to publish the northern tree as a variety (var. *Hindsii*) of the southern California species. As is frequently the case after publication, information flowed in more rapidly, and seemed to indicate that the northern tree should be regarded as a distinct species. This continued accession of knowledge sometimes discounted this view, sometimes fortified it. Meanwhile Professor Ralph E. Smith, of the Division of Plant Pathology, University of California, had been cultivating both the northern and southern forms in connection with his horticultural work on walnuts, and found striking differences in behavior of the seedlings and young trees. The two were planted in rows side by side: the southern form branches low, giving the young tree a pyramidal effect; the northern form is erect, spindling, not having strong branches or scarcely any. These differences forecast the marked differences in habit between the two forms: the southern form is, strictly speaking, a shrub, gigantic, or even elephantine, but still a shrub in its architecture, with many spreading stems from the base; the northern form is of forest-tree type, even in the open, with erect trunk ten to forty feet high, and bearing a symmetrical and not necessarily very broad crown. These differences thus seem inherent and not ecological. Professor Smith also found in his cultural plots at Whittier that the southern seedlings were healthy and vigorous, while the northern ones took the "yellows" badly; the southern form produced and held its leaves for a period of 3 to 4 months longer during the year than the northern form.

These and other considerations (see Figs. 27 and 28) seemed to require the specific separation of the northern form, and the writer gave to Professor Smith the name *Juglans Hindsii* Jepson, which he published in connection with his walnut work in 1909. Such evidence as has more recently appeared supports the view then taken. The citation of the two species are therefore as follows:

1. *JUGLANS CALIFORNICA* Wats. Proc. Am. Acad. 10:349 (1875), as to the Southern California plants. Dr. Watson had only Southern California material before him and the southern walnut is in consequence taken as the type of his species.
2. *JUGLANS HINDSII* Jepson, in Smith, Univ. Cal. Agr. Exp. Sta. Bull. 203:27 (1909). *J. californica* Wats. var. *Hindsii* Jepson in Bull. S. Cal. Acad. Sci. 7:23 (1908). This species was so named in memory of Richard Brinsley Hinds, botanist of the British exploring ship "Sulphur," who first discovered it on the banks of the Sacramento River in 1837.

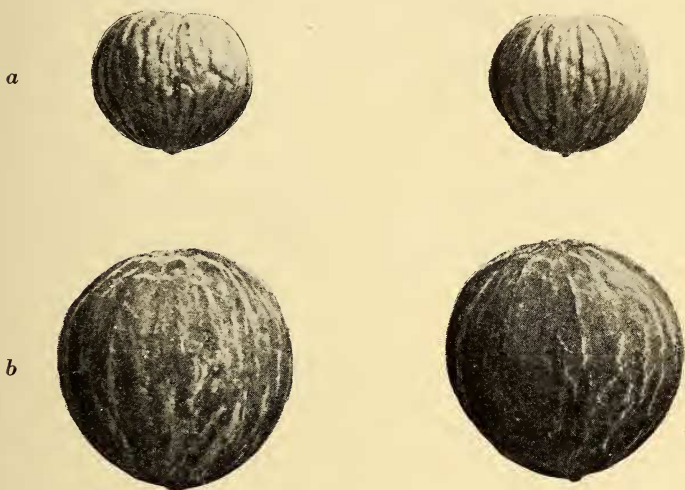


Fig. 28. This illustration shows the relative size of the nuts of the two California species of walnuts. Note at *a* the small walnuts of the Southern California Walnut, *Juglans Californica*, with their longitudinal channels. The nuts marked *b* show the smoother-surfaced nuts of *Juglans Hindsii* of Central California. In both the husks have been removed. For the photograph the writer is indebted to the courtesy of Professor E. B. Babeock. Nearly natural size.